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ABSTRACT

School and teacher factors associated with reading achievement are compared to items from the National Assessment of Educational Progress (NAEP) 1985 reading assessment. Significant factors which appeared in the literature included: methods and materials, time on task, difficulty level and high teacher expectation, teacher qualifications, student assessment; family contacts, and classroom management. Examination of the NAEP teacher questionnaires used for the 1983-84 assessment indicated that more emphasis was placed on writing than on reading. Items that addressed reading asked teachers about time on task, teacher excellence, and assessment and remediation. A number of recommendations are made: (1) NAEP should collect stronger data on school and teacher factors as they relate to student reading achievement; (2) more items should be included on reading instruction; (3) factors which contribute to reading success at specific age levels should be examined; (4) NAEP data should be used in reporting test results to schools and the public; and (5) terminology should reflect the distinction between lower-level basic skills in the lower grades and higher-level reading comprehension skills. Tables are included which list the various factors culled from research reviews and selected studies. (GDC)

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School and Teacher Factors and the NAEP Reading Assessments

Jeanne S. Chall

Harvard University

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School and Teacher Factors and the NAEP Reading Assessments

Jeanne S. Chall
Harvard University

This paper is concerned with the uses of school and teacher factors in explaining reading achievement of students in elementary and high schools. The relevant theoretical and empirical research is reviewed in an attempt to determine which school and teacher factors are most predictive of reading achievement. These "most predictive" factors are then compared to questions asked by NAEP for the 1985 reading assessment. Finally, recommendations are made to NAEP on the use of school factors in their future reading assessments.

Part 1 discusses why it is important to collect and use data on school and teacher factors in relation to achievement scores.

Part 2 reviews the relevant theories and research on the relation between school and teacher factors and reading achievement.

Part 3 discusses the school and teacher factors collected by NAEP for the 1985 reading assessment.

Part 4 suggests how NAEP might proceed with regard to school factors in their future reading assessments.

Warm thanks are extended to Liz Heron for assistance with the research for this paper and to Faith Harvey for the typing.

1. Why Assess School and Teacher Factors?

There are many reasons why it is important to collect and use information on school factors in the largest assessment on reading in the nation.

First, it can lead to knowledge about what is going on with regard to reading in schools and classrooms. Just as the NAEP reading scores give evidence on how well students are achieving in reading, there is a need to know what schools and teachers are doing with regard to instructing students in reading. Such evidence would cut down on the guessing as to what is being done in schools and by schools which, unfortunately, may not always check with what is being done.

Second, it would permit historical comparisons of methods and materials and of various teaching emphases that could help explain the gains and losses in reading during the different 5 year periods -- by the entire population, by different age groups, and by students of different backgrounds and communities.

Third, it could contribute to our understanding of the effectiveness of various school and teacher factors for reading achievement by providing national data for confirming or disconfirming results obtained from more limited studies. This knowledge is needed by researchers, policy makers, and educational practitioners.

Fourth, the study of school factors, particularly "alterable" ones, would serve to assure the general as well as the educational community that the ups and downs in achievement over time can be explained, at least partly, by what goes on in schools and classrooms. It would assure parents as well as teachers that schools and teachers do make a difference in reading

achievement and that ultimately doing more of what is related to better reading achievement will result in long-term improvements.

Fifth, were NAEP to collect good data on school and teacher practices (and attitudes) with regard to reading, researchers, school administrators, teachers, educational publishers, and educational policy makers would have some idea as to whether the periodic calls for reform are being implemented in practice, and also about how long it takes to implement certain reforms and innovations. And of even greater importance, it would make possible analyses to determine not only what practices followed by a given age group lead to better reading achievement for that group, but what is the effect of early and accumulated practices. In other words, what are the effects of cumulative practices in reading from kindergarten (and even preschool) through high school that lead to achievement or failure to achieve the highest NAEP scale point.

And finally, with relevant data from the school (as well as from the home), it is possible that NAEP can become a grand natural experiment in reading and literacy by making it possible to know not only how well students are achieving, but what seems to have brought it about, and what we might do to improve it further.

It is of interest that the 1985 NAEP report, the first to report the effects of other than social and racial background (Race, Urban/Rural, Advantaged/Disadvantaged), included two others -- also not alterable -- sex of student and education of parents. The "alterable" factors studied were related mainly to home influences -- reading material in the home and amount of TV viewing. The sole school factor reported as being related to

reading achievement was "homework" — a factor also focussed somewhat in the home.

It would be pointless to make a case for looking only to school factors. Our best knowledge still points to the strong or perhaps stronger influence of personal characteristics, social background and home influences. And yet considerable and convincing research, particularly that conducted during the past two decades, shows that schools also play a significant role in the reading achievement of the students in the U.S. and of the different NAEP subgroups. Thus, it may be self-defeating if NAEP were not to look at trends in schools, as well as in homes, with regard to literacy achievement — the first and perhaps the most important goal of schools.

2. School Factors in Reading Achievement: A Brief Historical Overview

The model of school learning of Carroll (1963) set the stage, in the early 1960's, for considerable empirical research on the conditions that affect school learning in general and reading achievement in particular. Carroll's model, as well as Bloom's (1976) adaptation, took into account both individual and environmental (particularly school) factors. The most influential empirical studies published during the sixties and early seventies, however, tended to find strongest evidence for individual and background factors and not for schools.

The central importance of individual factors came from the surveys of Coleman et al. (1966), the later reanalysis of the Coleman data by Jencks (1972) and the IEA international study of reading comprehension in 15 countries (Thorndike, 1973). These studies came forth with essentially the

same findings: after taking account of individual aptitude and/or family background (SES), characteristics of schools and teachers seemed to make little difference.

Soon after these surveys, a great variety of studies were undertaken by different kinds of investigators that demonstrated that schools and teachers did matter. These studies represented a kind of paradigm shift in educational research. They were conducted by different kinds of researchers (educational psychologists, reading specialists, school administrators) who seemed to have different objectives, although most seemed to share a concern for the low achievement of low-income and minority group students.

A large group of these are classified as Effective Schools Studies -- because of their strong mission to find ways that are effective in improving achievement among low achievers. Probably the first of such studies was conducted by George Weber (1971), director of research of the Council for Basic Education. After finding four inner-city schools whose children at grade 3 achieved on levels equal to that of the national norm, he observed the school conditions and concluded that it was the strong leadership of the principal, high expectations of pupil achievement, phonics as part of reading instruction, frequent assessment of achievement and use of the results, a variety of books in the classroom, and other factors that were related to their high achievement. Most school effectiveness studies have found essentially the same school factors significantly related to reading achievement among low SES schools, particularly for the primary grades.

The Effective Schools Studies, of which Weber's may be considered the

prototype, tend to reflect a strong mission. The studies they conduct are undertaken generally to effect improvement in achievement among low achieving students. Their findings are reported in Reaching for Excellence (1985) and are summarized below in Part 3 and in Table I. The Effective Schools Studies have, on the whole, been concerned mainly with low achievers from low SES backgrounds, minority students and most frequently in grades 1 to 3.

Another group of studies on school factors have been carried out by educational researchers who have tended to concentrate on certain aspects of instruction. Thus, Rosenshine (1979) has focussed on direct instruction; Berliner (1984) on "time on task"; and Bloom and his associates (1976) on various aspects of better matching of instruction and students who may "fall behind."

There have also been many studies of methods of teaching reading by educational researchers and reading specialists and studies of the effects of remedial instruction and prediction and prevention of reading difficulties.

There is a particularly long history of studies of beginning reading methods, most of which have found the benefits for methods that emphasize the teaching and learning of the alphabetic principle (Chall, 1967 and 1983a) and recent policy positions on phonics are based on this research evidence (Anderson et al., 1985; Bennett, 1936). See also recent theory and research from experimental psychology (Perfetti and Lesgold, 1979).

Text difficulty has also been found to be related to reading achievement at all grade levels -- from grade 1 (Chall and Feldmann, 1966) and for

grades 1 to 12 (Chall, Conard and Harris, 1977). In an analysis of the difficulty of textbooks used by different cohorts from 1945 to 1975 as compared to SAT scores, Chall et al. (1977) found that those cohorts who used more difficult texts had higher SAT scores. Two later studies (Chall et al., 1983 and Chall and Snow, 1982) also found that texts and trade books on or above the child's reading level were correlated with reading achievement, as compared to books below their level. And even earlier, significant effects for Grade 1 inner city children were found. Chall and Feldmann (1964) gathered data from observations, questionnaires and interviews of teachers of first-grade low-income children and found four broad factors related significantly to reading achievement: teacher excellence, a sound-symbol (decoding) emphasis in reading instruction, appropriate level of difficulty of the reading instruction and materials (not too easy, not too hard), and a thinking approach to learning.

It should be noted that even the large surveys that reported only minor effects of schooling on achievement did find some positive effects. But there was a tendency to overlook them. Thus, the finding in the Coleman (1966) report that high verbal ability of teachers correlated positively with high verbal ability of students tended to be interpreted as: high ability students were assigned to the more able teachers, rather than: the teacher's verbal ability probably influenced the pupil's higher verbal ability. And also seldom cited was Coleman's observation that school factors were "more important in affecting the achievement of minority group students" than the majority students.

In the IEA Reading Study (Thorndike, 1973), significant correlations

with reading achievement were found in some countries when book corners were provided in classrooms in the early grades. For the higher grades, in some countries, the more the teachers associated with professional and subject matter societies, the higher the reading achievement of their pupils.

In the early 1970's, Jansky and deHirsch (1972) found in their predictive study of early reading that having a good teacher in grade 1 reduced to one-half the number of children who actually failed, from those who had been predicted to fail. Thus, even when individual characteristics predicted high risk for failure, it could be "undone" by a good teacher, one out of two times.

The Coleman (1966) and Jansky and deHirsch (1972) findings that the greater sensitivity to school factors is found among minority group and other high-risk students puts further importance on the need for greater attention paid to school factors by NAEP. NAEP found in 1985 that though differences between disadvantaged and minority students (Black and Hispanic) as compared to advantaged and white students have decreased, there is still about a four grade difference in their reading achievement at age 17 as compared to the white majority and urban advantaged of the same age cohort.

It is recognized that the NAEP assessments do not and are not designed to produce longitudinal data. But NAEP can collect data useful in cross-sectional, developmental analyses that can result in inferences about the cumulative effects of school and teacher factors as well as the home factors first used in 1985 and background factors used from 1970 on.

Some Cautions With Regard to School Factors

The effective use of school factors for the benefits of research and practice will, I believe, depend upon at least two broad issues.

First, the factors should be critical ones, found to be important in past research and experience. These should further be limited to broad factors that encompass other related factors. (See Part 3 below, particularly "level of difficulty," for examples of closely related factors that could be "lumped" in a questionnaire.) The NAEP assessments should not be seen as an opportunity to search for possible factors. It should instead seek to use factors confirmed by past and current theory, by empirical research, and by strong consensus of teachers, curriculum specialists and school administrators.

Second, although some school and teacher factors seem to affect reading achievement at all age and grade levels, many seem to be important mainly at a particular stage of reading development. Thus, the direct teaching of phonics in grades 1 and 2 is associated with better achievement in the primary grades, and also has a cumulative effect on achievement in the intermediate grades and later (Chall, 1983b; Perfetti, 1985). There is no evidence, however, on the effects of teaching phonics in later grades, for those making normal progress. Indeed, except for positive effects for remedial instruction of older students and adults still functioning on primary reading levels, the effects may be negative.

It may further be hypothesized that the direct teaching of comprehension strategies and vocabulary meanings, which are strong school predictors, are strong mainly for students reading at 4th grade level and

above. Indeed, a strong emphasis in grades 1 and 2 on word meanings and comprehension when most children can already understand the familiar ideas and vocabularies in their readers may have a negative influence on reading achievement by taking teaching time away from instruction on word recognition and phonics and on amount of reading in class -- aspects of reading more essential for early progress and highly predictive of early achievement. See in this connection in Appendix A from Chall's Stages of Reading Development, Table 5-3, pages 92-94, for school, home and community conditions found at different levels of reading development.

To illustrate further the importance of viewing reading achievement as developmental, influenced at least in part by different school factors at different times, I present excerpts from an earlier analysis of NAEP reading score trends of 1970, '75 and '80 (Chall, 1983b, "Literacy: Trends and Explanations;" see especially pp. 4 to 7). In this analysis I tried to explain trends in the NAEP scores from 1970 to 1980 -- the steady increase in scores of 9-year-olds, the lesser increases among the 13-year-olds, and the decline found for 17-year-olds. My hypotheses to explain these trends came from two sources: what I thought were significant school and home changes related to reading during the 10 year period, and a developmental view of reading.

Following are direct quotes from the article that explicate these two hypotheses:

> ....I would like to propose that the gains and losses in reading achievement on the NAEP tests, and on others, reflect the changes in reading instruction that began in the late 1960s and that have been continuing in the 1970s and the early 1980s -- changes largely brought about by

the research and development efforts in literacy and directed more to younger children than to older ones. These included an earlier start, more and earlier phonics, harder basal readers grade for grade, more home instruction, more help to those who needed it, and the like. Thus the significant gains of fourth graders on all reading subtests in 1980 as compared to 1971 on the NAEP tests partly may be attributed to the stronger reading instruction in school and to the stronger home reading environment of the 1980 cohort as compared to the 1971. The fourth-grade cohort of 1971 was in first grade in 1967, before the stronger reading programs of the 1970s, and before Sesame Street and The Electric Company and the trend toward teaching of reading in kindergarten and in the home (Chall, 1983b). The fourth-grade cohort tested in 1980 were first graders in 1976, when they had the stronger school and home experiences in reading. Therefore, I believe that the significant gains over the 10-year period can be explained partly by some of these instructional changes.

The Grade 8 gains from the 1971 to the 1980 testing period suggest some influences from the cumulative effects of the stronger early reading programs of the 1970s. The one significant reading gain from 1971 to 1980 was in literal comprehension. Since the 1980 cohort was in Grade 1 in 1972, when some would have participated in a stronger reading program and environment, the improved scores in literal comprehension may reflect this stronger beginning. The 1971 eighth-grade cohort, on the other hand, was in Grade 1 in 1963, before the changes in early reading instruction were widely practiced.

That no improvement took place for 12th graders from 1970 to 1980 may also be viewed in terms of their early instruction. Both cohorts were in Grade 1 before the 1970s when most reading changes took place. The 1971 cohort was in Grade 1 in 1958; the 1980 was in Grade 1 in 1968. Neither seemed to have a stronger beginning. Thus, it would appear that the changes in beginning reading attitudes and reading characteristics of the national literacy effort of the 1970s "passed" both 12th-grade cohorts. It would be questionable, therefore, to attribute the decrease in inferential comprehension of the 1980 12th graders to the stronger skills emphasis of their early reading instruction, since there is little evidence that they received it. If there were changes from 1958 to 1968, they were probably toward a lighter skills emphasis in 1968. And yet, increasingly, researchers proclaim that the early skills emphasis of the 12th-graders is responsible for their low scores on inferential comprehension....

....Why the relatively high scores among these children in the primary grades and the deceleration trends beginning after Grade 4? A likely hypothesis, I believe, is a view of the reading process as developmental, changing in characteristic ways from the beginnings (and prebeginnings) to highly advanced, skilled reading (Chall, 1979, 1983a).

If reading is divided into levels or stages (Chall, 1983), a major break seems to be at about Grade 4. Pre Grade 4 reading can be said to represent the oral tradition, in that text rarely goes beyond the language and knowledge that the reader already has through listening, direct experience, TV, and so forth. We can view reading beyond Grade 4 as comprising the literary tradition — when the reading matter goes beyond what is already known. Thus, Grade 4 can be seen as the beginning of a long progression in the reading of texts that are ever more complicated, literary, abstract, and technical, and that require more world knowledge and ever more sophisticated language and cognitive abilities to engage in the interpretations and critical reactions required. The materials that are typically read at Grade 4 and beyond change in content, in linguistic complexities, and in cognitive demands.

The decelerations in reading achievement often found after Grade 4 may be explained, at least in part, by the different demands made on the reader. While the earlier grades require proficiency in word recognition and analysis, and in fluency or automaticity in these, it requires relatively little stretching in tasks of linguistic and cognitive capacities. In the upper elementary grades, high school and college, the challenge becomes primarily linguistic and cognitive. Yet, it should be remembered that without the fluent recognition of words, the so-called lower level skills, the higher cognitive skills do not function in reading comprehension.

Thus, we need to be concerned with at least two kinds of reading: reading for the early grades and reading for the higher grades. Children in the early grades presently seem to be succeeding. The higher are not.

Unfortunately, few (instructional) changes have been implemented at the higher levels. Many propose that the higher level skills be taught earlier. Some go even further to claim that it is the lower level skills now taught in the primary grades that are responsible for poor achievement in the higher level skills.

It would seem to me that both these hypotheses need

empirical testing before they become general practice. Indeed, the data that do seem to offer some direction for improvements at the higher levels suggest that we need to have strong skills at the beginning as well as higher order skills at upper elementary, high school and college ....

....Explanations for trends seem to lie in a consideration of history: the environmental history of how children were taught in school and at home, and how this environmental history fits with the course of development of reading in the individual.

When there are improvements or declines in literacy over time, it is well to look at what and how students were taught, not only at the time the decline is observed, but how they learned to read initially and over the long haul. It would seem important to keep records of the literacy environment, from the early grades through high school and college. Thus the periodic testing of samples of children as now done by the NAEP needs to be supplemented by periodic indices of reading and writing instruction -- indices that have been found over the years to be reliably associated with literacy achievement. For reading, such factors as reading methods, book exposure in school and at home, the level of challenge of textbooks used in the different grades and content areas, the number and level of books read to and by the pupil, time on task, have proven useful....

....Making inferences as to whether we are teaching correctly from achievement results alone, without relating them to what indeed was taught, is risky....

....Development of reading through the various levels or stages, in relation to given learning conditions, may give us a better insight into solutions that might work over time for the individual, for definable groups, and for schools and school systems. It seems wasteful to cry for a different instructional program whenever scores drop, when we have so little evidence as to what brought it about and whether the different program will improve matters. It can make matters worse.

Thus the proposal of many that the emphasis on basic skills in the early grades during the 1970s produced the decline in 12th-grade in the 1980 cohort as compared to the 1970 cohort is puzzling, for neither cohort had the heavier skills emphasis. Indeed, the NAEP data tend to show that those who did get the stronger skills emphasis

> did better. In Grade 4, in fact, they did significantly better, not only in literal comprehension, but in inferential comprehension and in reference skills....

It is of interest to note that most reading researchers, including NAEP analysts, explained the trends, particularly the lower scores of 17-year-olds, on the "teaching of basics" without any data that "basics" were being overtaught.

It is also significant that the 1985 NAEP report confirms Chall's (1983) hypothesis of the positive influence of early conditions on reading achievement on ages 13 and 17, as well as on age 9. But interestingly, the cumulative effects of early experiences are presented as differences in dates of birth, rather than by differences in home and school reading experiences characteristic of different time periods. The only "school factor" noted as having a cumulative beneficial effect is attendance at preschool. (See NAEP, 1985, p. 33.)

And yet the same concern about the need for developing higher-level comprehension skills — for <u>all</u> children -- is repeated in the 1985 report, with no data cited from the school and teacher questionnaires to back it up.

I quote liberally on this point from the NAEP Report (1985, pp. 8-9):

> ....American schools can thus take considerable pride in the improving trends in students' reading proficiency over the past 13 years. At the same time, the results from the 1984 assessment suggest two agendas for the future: continued special attention to disadvantaged and minority children and increased emphasis on higher-level reading skills for all....
>
> ....Attention to such higher-level reading skills has already begun in many schools across the country; the challenge will be to ensure that <u>all</u> students have the

opportunity to develop such skills. There has been a conceptual shift in the way many researchers and teachers think about reading, which gives students a much more active role in the learning and reading comprehension process [Landscapes: A State-of-the-Art Assessment of Reading Comprehension Research, 1974-1984. Indiana University, 1985.]. This shift is reflected in changes from packaged reading programs to experiences with books and from concentration on isolated skills to practical reading and writing activities.

Yet, improvements in higher-level reading skills cannot come about simply by an emphasis on reading instruction in isolation from the other work students do in school. To foster higher-level literacy skills is to place a new and special emphasis on thoughtful, critical elaboration of ideas and understandings drawn from the material students read and from what they already know. They must learn to value their own ideas and to defend as well as question their interpretations in the face of alternative or opposing points of view.

The development of such thoughtful, creative approaches to learning runs counter to much of what students are asked to do in school. Reading in schools is sometimes a relatively superficial activity, a prelude to a recitation of what others have said. Though not optimal, such approaches may be sufficient when teachers are most concerned with the "right" answer and lower-level skills. At other times, reading can be a thoughtful, creative activity, one that challenges students to extend and elaborate upon what others have said and written. In developing higher-level reading skills and strategies, students will benefit from experience with a wide range of challenging materials. Though there has been considerable concern with providing students with "readable" texts -- and a concomitant simplification of instructional materials -- this may have inadvertently reduced students' opportunities to develop comprehension strategies for dealing with more complicated material that presents new ideas.

There are opportunities for such experiences in all of the subjects students study in school, as well as in what they read at home. They can learn to develop their own interpretations of what they read,

> to question, rethink, and elaborate upon the ideas and information drawn from their reading experiences -- in conversations with their friends, in discussions with their teachers, and in the writing they do for themselves and others. And in that process, students will also be acquiring the higher-level reading comprehension skills that so many are presently lacking....

While few educators would argue with the above, one wonders whether such statements will prove valid in terms of the NAEP data on achievement and on the results from the school and teacher questionnaires of 1985. In an eagerness to bring the general population of students to still higher literacy levels, the main solution proposed is one that may be effective for those already achieving well according to national norms. Further, since students from minority groups tend to be at the lower levels of proficiency, age for age, they may for a long time remain on the more elementary stages of reading that require more fundamental skills before higher-order ones. It would seem that more study of the relation between school factors and achievement, particularly among those students who lag behind, is needed before one can recommend so general an enrichment for all as a viable solution.

Indeed, too much attention to higher-level skills at too early a stage may be a likely hypothesis for the 1985 tapering of NAEP scores among 9-year-olds as compared to the gains they made from 1970 to 1980. When one tries to think of the changes in reading instruction that took place nationally in 1975 or 1980, when the 9-year-olds were in first grade, two factors come to mind. First, a change in what was considered ideal. From a greater focus on decoding in comparison to comprehension of the late 1960's and 1970's, there was a movement toward a greater emphasis

in grades 1 and 2 on comprehension, following the greater research effort on comprehension at the University of Illinois Center for Research in Reading which focussed on grade 4 and above and which found its way down, even to kindergarten and 1st grade, as it so often does in the application of reading research.

This hypothesis can be tested by comparing the basal readers, workbooks and teacher's manuals used by the 1970, '75, '80 and '85 cohorts for the amount of time and pacing devoted to word recognition, phonics, comprehension and word meanings.

A second hypothesis for the tapering of the age 9 scores is the decline in remedial services in the schools nationally. With the various state laws attempting to cut spending (e.g., proposition 2-1/2 in Massachusetts), the funds for special services in schools were cut. This included remedial reading teachers. The services to the children most severely disabled in reading were not cut, because the funds come from the federal government. Thus only those with severest reading problems received the help they needed. Those with milder problems were negatively affected. This might also explain the "tapering" of scores among the 9-year-olds.

Summary of Research on School and Teacher Factors

Tables I and II below pull together some of the school and teacher factors found significant for reading achievement. Time did not permit a thorough search of the relevant literature, nor a finer analysis of the grade, stage of reading development, or the type of population on which

each study was made.

The purpose of the tables was to note those factors found repeatedly at all levels of schooling and those more specific to earlier or higher levels of achievement. Another purpose was to indicate the interrelatedness of many factors. We combined factors under broader rubrics which should be able to lead to a minimal set of factors that would not be an additional burden to teachers, administrators and students.

Table I presents the school and teacher factors found from a review of the relevant reviews and metaanalyses concerned with the effects of school and teacher procedures on student reading achievement. These include studies of beginning reading methods (Chall, 1967 and 1983), mastery learning (Bloom, 1976) and the more recent School Effectiveness Studies reviewed by Tomlinson and Walberg (1986) and in the NIE, Reaching for Excellence (1985).

Table II presents the school and effectiveness factors found important in selected studies.

As noted earlier, these were not meant to be complete. They are presented only as illustrations.

The tables appear to confirm that a limited number of conditions have been found again and again that relate positively to reading achievement. For all grades, the level of difficulty of the lesson (which subsumes high academic expectations) is an important factor in reading achievement. Time spent in reading -- which is a by-product of good classroom management -- is also a factor. Direct instruction also cuts across other factors, as do quality of teaching and frequent and timely assessment.

TABLE I

School and Teacher Factors from Research Reviews

	Chall 1967, 1983	Bloom 1976	Lerner 1982	Purkey and Smith 1985	Tomlinson and Walberg 1986		Reaching for Excellence 1985				What Works 1985
					Ward	Good	Stallings	Bossert	Doyle	Corcoran	
Grade Levels	1	1-8	1-12	1-12	7-8	1-6	1-6	1-6	1-12	9-6	1-12
1. METHODS AND MATERIALS											
a. Decoding Emphasis in Beginning Reading	x							x	x		x
b. Basal Readers not too Easy	x	x	x								
c. Direct Instruction	x				x	x	x	x	x		x
d. Emphasis on Vocabulary and Comprehension in the Middle Grades											
e. Variety of Materials					x				x		
f. Thinking Approach to Learning						x	x		x		x
g. Remediation					x		x	x	x	x	
h. Background Knowledge and Content Areas									x		x
2. TIME ON TASK											
a. Time Spent Reading		x	x	x		x		x	x	x	x
b. Homework			x		x		x			x	x

TABLE 1

(continued)

	Chall 1967, 1983	Bloom 1976	Lerner 1982	Purkey and Smith 1985	Tomlinson and Walberg 1986		Reaching for Excellence 1985				What Works 1985
					Ward	Good	Stallings	Bossert	Doyle	Corcoran	
Grade Levels	1	1-8	1-12	1-12	7-8	1-6	1-6	1-6	1-12	9-6	1-12
3. LEVEL OF DIFFICULTY											
a. Difficulty of Instruction Above Student's Level of Achievement	x	x	x		x	x	x	x	x		x
b. Academic Excellence Expected and Clearly Explained to Students		x	x	x	x	x	x	x	x	x	x
c. High Teacher Expectations		x	x		x	x	x	x	x	x	x
d. Ability Grouping in Reading						x	x	x			
e. Fluidity of Levels in Schools or in Class Grouping					x	x	x		x		
f. Level of Difficulty of Secondary School Texts			x					x			x
4. TEACHER											
a. Professionalism and Knowledge of Subject		x				x	x		x		
5. ASSESSMENT				x	x	x	x	x	x	x	
6. FAMILY CONTACTS		x	x	x						x	x
7. CLASSROOM MANAGEMENT				x	x	x	x		x	x	x

TABLE II

School and Teacher Factors from Selected Studies

	Chall and Feldmann 1966	Chall et al 1977	Chall and Snow et al 1982	Rutter et al 1979	Coleman 1981
Grade Level	1	1-11	2-7	9-12	9-12
1. METHODS AND MATERIALS					
a. Decoding Emphasis in Beginning Reading	x		x		
b. Basal Readers not too Easy		x	x		
c. Direct Instruction	x		x		
d. Emphasis on Vocabulary and Comprehension in the Middle Grades			x		
e. Variety of Materials			x	x	
f. Thinking Approach to Learning	x		x		
g. Remediation					
h. Background Knowledge and Content Areas			x	x	x
2. TIME ON TASK					
a. Time Spent Reading			x	x	
b. Homework			x	x	x

TABLE II

(continued)

	Chall and Feldmann 1966	Chall et al 1977	Chall and Snow et al 1982	Rutter et al 1979	Coleman 1981
Grade Level	1	1-11	2-7	9-12	9-12
3. LEVEL OF DIFFICULTY					
a. Difficulty of Instruction at or Above Student's Level of Achievement	x	x	x	x	x
b. Academic Excellence Expected and Clearly Explained to Students			x	x	x
c. High Teacher Expectations			x	x	x
d. Ability Grouping in Reading			x		
e. Fluidity of Levels in Schools or in Class Grouping					
f. Level of Difficulty of Secondary Schooltext		x	x		
4. TEACHER					
a. Professionalism and Knowledge of Subject	x		x	x	x
5. ASSESSMENT				x	x
6. FAMILY CONTACTS			x		
7. CLASSROOM MANAGEMENT				x	

1. Level of difficulty -- Both tables consistently report the level of difficulty of instruction (and high expectations of academic excellence) as major factors in achievement.

2. Time on task -- both the time spent reading and, to a lesser degree, the time spent on homework were reported as correlating highly with reading achievement. The simple message is, the more one reads, the better one reads. Since the association is based on correlation, it may equally be true that the better one reads, the more one reads.

Closely related to time on task is the factor of classroom management which also figured highly as a correlate of reading achievement. These two factors may be related as follows: if a classroom is poorly managed there is rarely time for focussed and sustained concentration on the task. Stallings (1985) reports that of the allotted time that students are expected to be in school, only about a third to a half of that time, is really spent by students engaged in academic tasks.

3. Direct instruction -- Although this factor is reported and discussed most frequently in the context of the lower grades, of low achievers in the middle and higher grades, and in the context of teaching the basic skills in beginning reading, there is now evidence that direct instruction in reading is also important for the upper grades as well (Doyle, 1985). (See also in this connection, in Appendix B, Table 2-2, p. 37, from Chall's Stages of Reading Development, in which direct instruction, although its content changes at the different stages, is needed from beginning to the most advanced stages.)

4. Teacher quality -- Teacher excellence figures again and again as a major factor in reading achievement. It is particularly interesting to

note that the actual studies reported in Table II consistently report this as a factor. In fact, the only one of the five studies that did not mention teacher excellence is Chall (1977) -- a study which focussed specifically on the level of difficulty of textbooks in relation to declining SAT scores, and did not research teacher factors.

5. Assessment — Frequent and timely assessment also figures highly in the reports. This factor, while set apart from the others, is no doubt related to many of the others. Assessment enables the teacher, the child, the parent and the school to see not only what has been accomplished, but in what ways the curriculum and the instructional methods need to be changed in order better to teach the students. For example, the level of difficulty of a lesson and/or text can be matched more precisely to the student if there is frequent and timely assessment of the student's progress. Assessment also provides a clear and concrete way of showing the student what is expected. Finally, it provides teachers with a way to back up the high academic expectations with a tangible system of student accountability for achievement.

With more complete study of these factors, an even higher degree of overlap between factors will no doubt be found.

3. The 1985 NAEP Questionnaires Completed by Teachers and School Administrators

The section that follows concerns the teacher, administrator and student questionnaires and the kind of data these might yield for an analysis of school factors* in relation to achievement scores.

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* By focussing on the relation to school factors, it should not be assumed that home and personal and social background factors are less important.

We reviewed all 3 age class levels of the NAEP Teacher and School Characteristics and Policies Questionnaires for the 1983-84 Assessment and compared them to the factors listed in Tables I and II above. The purpose of this comparison was to determine which questions in the NAEP questionnaires would elicit responses that might be useful in an analysis of school factors in relation to reading achievement.

In other words, what questions were directly focussed on getting information on those school and teacher factors known to be related to reading achievement? What, if any, were the patterns and the focus of the questionnaires? And finally, what appeared to be some of the strengths and weaknesses of the questions?

The immediate observation one can make about the questionnaires is that reading is not their main focus; writing is.* At all class levels of the Teacher Questionnaire, the writing questions probe much more deeply into the process of teaching and evaluating writing than do the reading questions. Of the questions that do address reading, the following observations can be made. First, the questions are extremely general and tend to fall under the following 3 factors: time on task, teacher excellence, assessment and remediation. A brief commentary on the questions related to each factor follows.

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* In the class 1 (9-year-olds) Teacher Questionnaire about 33% of the questions relate to reading while over half refer to writing. The class 2 (13-year-olds) and class 3 (17-year-olds) Teacher Questionnaires spend less than 15% of their 107 questions on reading while the high percentage of writing related questions remains constant. Apparently NAEP did not consider that learning to read in the later grades also has a process that is intelligible and is related to school factors. (See for example Table I where many of the relevant school factors cut across age levels.)

Time on Task -- Questions on both the Teacher and School Policy questionnaires focus on how many courses were taught and how many hours were spent in reading instruction. While answers to these questions may be helpful, one could not glean from these questions how those hours/courses were conducted. In contrast, the set of questions on writing did focus on process and content of courses and time. Further, the NAEP questions on both the Teacher and Policy questionnaires that related to time on task did not include questions about homework. A question on homework appears only on the Student questionnaire. (It is interesting to note that NAEP cited findings from the question on homework, from the Student questionnaire, in its Reading Report of 1985, as the single school factor which influences reading achievement. None of the results from the Teacher or Policy questions were reported in the Reading Report Card.)

About a fourth of the questions were related to teacher quality, but most seemed to be quite indirect. For example, teacher training and experience were surveyed. While these survey questions will no doubt prove useful, it is interesting to note that the School Characteristics and Policies questionnaires, to be completed by principals and other administrators, did not ask for an assessment of teacher quality.

Finally, assessment and remediation questions comprised the third set of school reading factors. Interestingly, the two questions on the Teacher questionnaires focussed specifically on remediation while the questions on the School Policy questionnaire focussed on both remediation and minimal competency testing. There were no questions in either questionnaire about assessment techniques used to enable student advancement

and/or recognition of achievement.

There were several other sets of questions concerning reading which, although less common, do deserve attention.

First, one notes that in the 9-year-olds' (class 1) teacher questionnaire many of the questions for methods used are listed. This list is somewhat puzzling, for the items cover beginning reading approaches appropriate for a 1st and perhaps a 2nd grade, but not appropriate for most 4th grades. They do not reflect the possible teaching strategies used by the average 4th grade teacher. Further, they are quite dated, including approaches widely discussed in the early 1960's, but probably not used or discussed today.

Finally, the questions about reading generally focussed on the immediate practices in reading policy and instruction, by age class. It would be useful to include some retrospective questions as well, especially in the school characteristics and policy questionnaire for class 1, the 9-year-olds. Questions about what basal series was used in the earlier grades and what methods were used in beginning reading would also prove helpful (see Table II). With more retrospective information, a developmental picture of the school factors related to reading achievement could be conceptualized.

4. Recommendations

Recommendations are presented in broad terms. It would not be appropriate, based on the limited time available for the present position paper, to make specific recommendations to NAEP on the school and teacher factors to be related to student achievement in their future reading assessments.

Specific recommendations for questions that would yield the most useful school and teacher data should come from a more comprehensive study of the existing research.

Within the limitations of the present analysis, the following recommendations are made:

1. It is suggested that the NAEP data can contribute more to the understanding of how reading develops, how and why it changes over time, and why it varies for different groups by gathering stronger data on school and teacher factors, and relating these data to student reading achievement.

2. Our analysis of the Teacher and Policy questionnaires used in the NAEP 1983-84 assessment indicates that relatively few questions on reading were asked and that these questions barely covered the school and teacher factors found consistently correlated with reading achievement in the research of the past two decades.

We therefore recommend that NAEP start with the school and teacher factors found in our reviews and that these be "chunked" even further, if possible. While other relevant research should be found, we recommend, for actual use by NAEP, only those factors that have been found highly predictive by past research and from strong consensus among practitioners. These will probably include the following seven aspects of reading teaching and practice in schools: 1. methods and materials, 2. time devoted to reading, 3. level of difficulty of materials and instruction (in relation to ability of student), 4. quality of teaching, 5. frequent assessment and use of the results for instruction, 6. school and family contacts, and 7. classroom management.

3. It is also suggested that while some factors would be good predictors for all NAEP age groups, others may be important mainly for the younger (or beginners) and others for the older, more skillful readers. Thus, quality of teaching and level of materials (basals, trade books, and content textbooks) are probably significantly related to all levels of reading achievement. But emphasis on phonics is related to early reading development while direct teaching of comprehension and vocabulary is related more to intermediate and higher levels of reading.

It is therefore recommended that in refining and adding to the factors presented above, NAEP seek out not only those that predict improvement at all levels, but those that may have a positive effect at given reading stages or points on the NAEP five-point scale.

The recognition by the NAEP 1985 Report that gains at the early test period (e.g., age 9) contribute to later gains at age 13 and still later at age 17 should give NAEP the incentive to view students' reading achievement in terms of its development from the early to the later grades -- for the total population as well as for the various subgroups -- in relation to school and teacher and home factors. In doing so, it will be possible to make more specific and useful recommendations to schools, teachers, educational publishers, and parents, for short- and long-term reading achievement of students.

Thus, if NAEP were to collect data on the books used by NAEP students sampled at the different age groups (readers, textbooks and trade books), a great deal could be learned about the methods used to instruct them, the level of difficulty of the books they used in relation to their level of

reading, etc. This information could further be used to compare books used in earlier and in later assessment periods.

4. It is recommended also that the interpretations of the test results and the recommendations made to schools and to the public be made on the basis of NAEP data, rather than on general observations that most educators seem to hold at a particular time. Thus the recommendation in the 1980 NAEP Report that the seeming decline in the higher level comprehension skills of the 17-year-olds be remedied by an earlier emphasis on higher-level comprehension skills and a de-emphasis on basic skills was ill-founded. Indeed, the 1985 NAEP Report acknowledged that the stronger scores of the 9-year-olds (stronger basic skills) did in fact result in higher comprehension scores at ages 13 and 17 in 1985. Since the NAEP 1985 Report did not include the findings from their own questionnaires on teacher and school factors, it is somewhat puzzling to find a similar recommendation for the future reading improvement of all children. Again it is recommended that all teachers emphasize the "higher-level reading comprehension skills that so many are presently lacking" (p. 9).

It would be well, instead, to base school and teacher recommendations for improvement of student reading achievement on research evidence — from NAEP and from other sources — recommendations that have a high probability of achieving better results. Indeed, since the greatest need for improvement is still among minority group and low-income children, and since their achievement at all ages tested is several years behind that of the total population, it may well be that the major thrust should be on improving the teaching of the earlier skills of reading. But only data on school

practices related to student achievement could lead to such recommendations.

5. My fifth, and final, recommendation concerns the terminology used to describe the different levels of reading achievement and the nature of the concomitant skills and abilities required to reach them. Generally, in the 1985 NAEP Report and perhaps more in the 1980 Report, a distinction is made between the so-called lower-level reading skills achieved by the younger and less able readers and the higher-level comprehension skills needed for higher achievement.

This kind of distinction, although it is not meant to disfavor the "lower" or favor the "higher" level skills, seems to lead to a kind of rhetoric that looks with disfavor upon the lower, or the basic skills, and looks with favor upon higher-level skills. Indeed, there is a further tendency, also unfounded, to view basic skills as well as direct teaching as non-cognitive, repetitive and meaningless drill while the higher-level comprehension skills are viewed as essentially more meaningful, thoughtful, and more interesting.

It should be noted from our Tables I and II that a "thinking approach to learning" and direct teaching can be found at all levels of reading instruction, whether the basic or fundamental skills of first grade reading are taught, or the more advanced higher-level comprehension skills. Thus, care in discussing the various stages of reading development, or the 5 points on the NAEP scale, will make it easier to avoid the rather broad proposals for improvement that have as their support perhaps a wide consensus but without strong empirical or theoretical evidence.

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Appendix A and B removed because of poor reproducibility and copyright restrictions.

Appendix A contained a table "How and Where Learning Takes Place" from Jeanne S. Chall, Stages of Reading Development. New York: McGraw-Hill, 1983, pp. 92-94.

Appendix B contained a table "Instructional Issues By Reading Stages" from Jeanne S. Chall, Stages of Reading Development. New York: McGraw-Hill, 1983, p. 37.